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(54) **ROTARY REGENERATIVE HEAT EXCHANGER AND A METHOD FOR OPERATING SUCH HEAT EXCHANGER**

**UMLAUFENDER REGENERATIVER WÄRMETAUSCHER UND VERFAHREN ZUM BETREIBEN  
EINES UMLAUFEDES REGENERATIVES WÄRMETAUSCHERS**

**ECHANGEUR DE CHALEUR ROTATIF A REGENERATION ET SON MODE D'UTILISATION**

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(73) Proprietor: **ABB AIR PREHEATER, INC.**  
**Wellsville, NY 14895-0372 (US)**

(72) Inventor: **WESTERLUND, Dag**  
**S-175 73 Järfälla (SE)**

(74) Representative: **Waldinger, Ake**  
**Svenska Rotor Maskiner AB**  
**Box 15085**  
**104 65 Stockholm (SE)**

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• **PATENT ABSTRACTS OF JAPAN, Vol. 5, No. 83,**  
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**27 March 1981.**

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tor plate so that the air cushion will receive a corresponding extension.

[0026] Figs. 3 and 4 illustrate alternative shapes of the front surface 12', 12'', respectively. In fig. 3 the front surface 12' is rectangular, limited by two straight lines 13', 14', and in fig. 4 the front surface is crescent-shaped, limited by two non-concentric circular arcs 13'', 14''.

#### Claims

1. Rotary regenerative heat exchanger having a substantially cylindrical rotor (2) mounted in a casing (1), which rotor (2) at at least one of its ends is provided with a circumferentially continuous external end surface (11), and which casing (1) is provided with plates (5, 6, 7, 8) at at least one of said rotor ends in an orientation substantially perpendicular to the axis of said rotor (2) and closed to the related rotor end, said plates (5, 6, 7, 8) including movable sector plates (6, 8), each said sector plate (6, 8) being affected by a resultant axial force towards the related rotor end and being provided with support means (10) for maintaining a certain clearance (S) between said sector plates (6, 8) and the related rotor end, said support means (10) including gas cushion means (17), each said gas cushion means (17) having a front surface (12) facing said end surface (11), said front surface (12) having gas outlet means (16), said gas outlet means communicating through gas conduit means (23, 24, 25, 26, 27) with a pressurized gas source (22) of a pressure sufficient to establish a gap between said front surface (12) and said end surface (11) against the action of said axial force, thereby creating a gas cushion between said front surface (12) and said end surface (11) as said gas escapes from said gas outlet means (16) through said gap, characterized in that the support means (10) of at least one of said sector plates (6, 8) consists of one single gas cushion means (17) and that the front surface (12) of said gas cushion means has an elongated shape, having its longer extension directed circumferentially along said end surface (11).
2. Rotary regenerative heat exchanger according to claim 1, wherein said front surface (12) is radially limited by two concentric circular arcs (13, 14) and having substantially a sausage-shape.
3. Rotary regenerative heat exchanger according to claim 1, wherein said front surface (12') is radially limited by two parallel straight lines (13', 14'), and having a substantially rectangular shape.
4. Rotary regenerative heat exchanger according to claim 1, wherein said front surface (12'') is radially limited by two non-concentric circular arcs (13'', 14'') and having substantially a crescent-shape.
5. Rotary regenerative heat exchanger according to any of claims 1 to 4, wherein the angular extension of said front surface (12) is more than half the angular extension of said sector plate (6, 8), and said front surface (12) is symmetrically located relative to a radial symmetry (19) line in the plane of said sector plate (6, 8).
6. Rotary regenerative heat exchanger according to any of claims 1 to 5, wherein said gas outlet means (16) is a groove extending in the longitudinal direction of said front surface (12).
7. Rotary regenerative heat exchanger according to claim 1 or 2, wherein said front surface (12'') is a part of the internal surface (28) of said sector plate (6, 8).
8. A method for operating a rotary regenerative heat exchanger to maintain a certain clearance (S) between one end of a substantially cylindrical rotor (2) of the heat exchanger and a movable sector plate (6, 8) located closed to said rotor end in an orientation substantially perpendicular to the axis of said rotor (2), said rotor end having a circumferentially continuous end surface (11), said rotor (2) being mounted in a casing (1) and said sector plate (6, 8) being connected to said casing and being affected by a resultant axial force towards said rotor end, said clearance (S) being maintained by supplying gas to support means (10) on said sector plate (6, 8) said support means (10) including gas cushion means (17) having a front surface (12) with gas outlet means (16) and facing said end surface (11), the pressure of said supplied gas being sufficient to establish a gap between said front surface (12) and said end surface (11) against the action of said axial force, thereby creating a gas cushion between said front surface (12) and said end surface (11) as said gas escapes from said gas outlet means (16) through said gap, characterized by supplying said gas to one single support means (10) and arranging said single support means (10) to form an elongated gas cushion, having its longer extension directed circumferentially along said end surface (11).

#### Patentansprüche

1. Rotierender, regenerativer Wärmetauscher mit einem im wesentlichen zylindrischen Rotor (2), der in einem Gehäuse (1) montiert ist und an wenigstens einem seiner Enden mit einer über den Umfang durchgängigen äußeren Endfläche (11) versehen ist, wobei das Gehäuse (1) an wenigstens einem der Rotorenden mit Platten (5, 6, 7, 8) mit im we-

Fig. 5

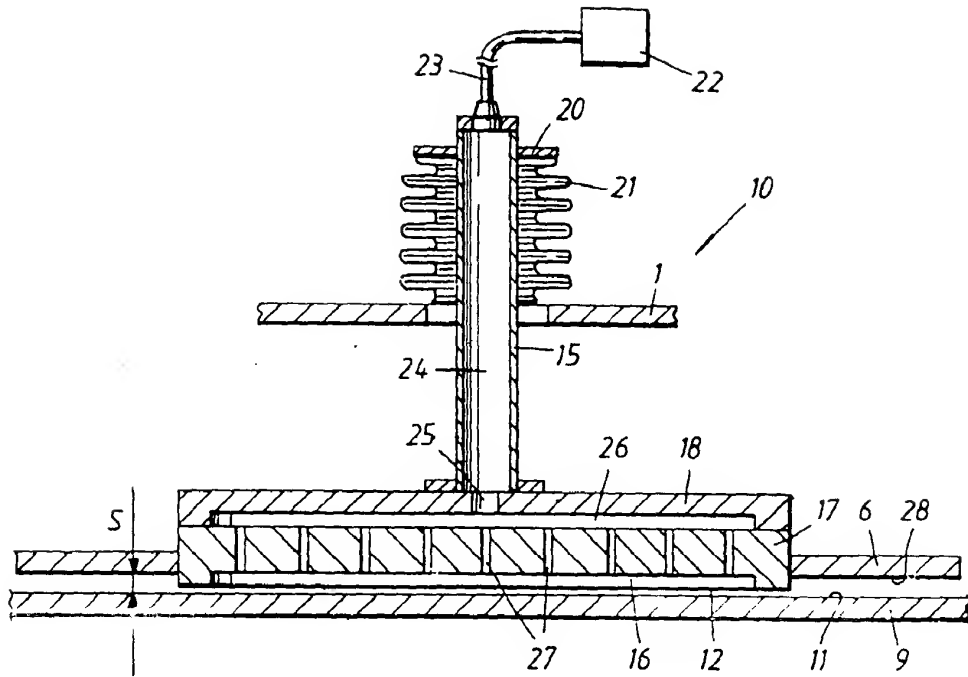


Fig. 6

